



## CNBP gene

CCHC-type zinc finger nucleic acid binding protein

### Normal Function

The *CNBP* gene (also known as *ZNF9*) provides instructions for making a protein called CCHC-type zinc finger nucleic acid binding protein. This protein has seven regions, called zinc finger domains, which are thought to attach (bind) to specific sites on DNA and its chemical cousin, RNA.

The *CNBP* protein is found in many of the body's tissues, but it is most abundant in the heart and in muscles used for movement (skeletal muscles). Although the exact function of this protein is unclear, it appears to regulate the activity of other genes. The *CNBP* protein is necessary for normal embryonic development.

One region of the *CNBP* gene contains a segment of four DNA building blocks (nucleotides) that is repeated multiple times. This sequence, which is written as CCTG, is called a tetranucleotide repeat. In most people, the CCTG sequence is repeated fewer than 26 times.

### Health Conditions Related to Genetic Changes

#### myotonic dystrophy

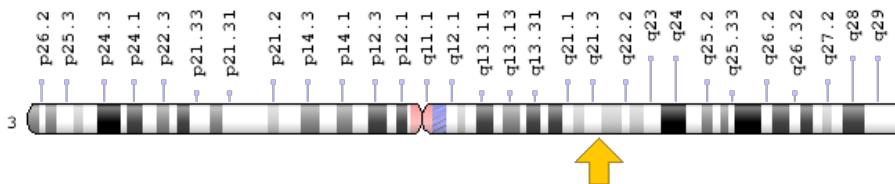
Type 2 myotonic dystrophy results from a mutation in the *CNBP* gene known as a tetranucleotide repeat expansion. This mutation increases the size of the repeated CCTG segment in the *CNBP* gene. People with type 2 myotonic dystrophy have from 75 to more than 11,000 CCTG repeats.

The mutated *CNBP* gene produces an altered version of messenger RNA, which is a molecular blueprint of the gene that is normally used to guide the production of proteins. Researchers have found that the altered messenger RNA traps proteins to form clumps within the cell. The clumps interfere with the production of many other proteins. These changes prevent muscle cells and cells in other tissues from functioning properly, leading to muscle weakness and the other features of type 2 myotonic dystrophy.

## Chromosomal Location

Cytogenetic Location: 3q21.3, which is the long (q) arm of chromosome 3 at position 21.3

Molecular Location: base pairs 129,167,815 to 129,183,967 on chromosome 3 (Homo sapiens Annotation Release 108, GRCh38.p7) (NCBI)



Credit: Genome Decoration Page/NCBI

## Other Names for This Gene

- CCHC-type zinc finger, nucleic acid binding protein
- cellular nucleic acid binding protein
- cellular retroviral nucleic acid-binding protein 1
- CNBP1
- CNBP\_HUMAN
- DM2
- ZCCHC22
- zinc finger 9 protein
- zinc finger protein 9
- zinc finger protein 9 (a cellular retroviral nucleic acid binding protein)
- zinc finger protein 273
- ZNF9

## Additional Information & Resources

### Educational Resources

- Molecular Biology of the Cell (fourth edition, 2002): There Are Several Types of DNA-binding Zinc Finger Motifs  
<https://www.ncbi.nlm.nih.gov/books/NBK26806/#A1242>

## GeneReviews

- Myotonic Dystrophy Type 2  
<https://www.ncbi.nlm.nih.gov/books/NBK1466>

## Scientific Articles on PubMed

- PubMed  
<https://www.ncbi.nlm.nih.gov/pubmed?term=%28%28ZNF9%5BTIAB%5D%29+OR+%28zinc+finger+protein+9%5BTIAB%5D%29%29+OR+%28%28Cellular+nu+cleic+acid+binding+protein%5BTIAB%5D%29+OR+%28CNBP%5BTIAB%5D%29%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+720+days%22%5Bdp%5D>

## OMIM

- ZINC FINGER PROTEIN 9  
<http://omim.org/entry/116955>

## Research Resources

- Atlas of Genetics and Cytogenetics in Oncology and Haematology  
[http://atlasgeneticsoncology.org/Genes/GC\\_CNBP.html](http://atlasgeneticsoncology.org/Genes/GC_CNBP.html)
- ClinVar  
<https://www.ncbi.nlm.nih.gov/clinvar?term=CNBP%5Bgene%5D>
- HGNC Gene Family: Ring finger proteins  
<http://www.genenames.org/cgi-bin/genefamilies/set/58>
- HGNC Gene Family: Zinc fingers CCHC-type  
<http://www.genenames.org/cgi-bin/genefamilies/set/74>
- HGNC Gene Symbol Report  
[http://www.genenames.org/cgi-bin/gene\\_symbol\\_report?q=data/hgnc\\_data.php&hgnc\\_id=13164](http://www.genenames.org/cgi-bin/gene_symbol_report?q=data/hgnc_data.php&hgnc_id=13164)
- NCBI Gene  
<https://www.ncbi.nlm.nih.gov/gene/7555>
- UniProt  
<http://www.uniprot.org/uniprot/P62633>

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